

REMARKS**I. Amendments**

The present invention is directed to assembly of a backing plate 26 and a shim 28. The instant application contains two embodiments. In the first embodiment, the stem 62 provided on the backing plate 26 is riveted after coupling with hole 72 of the shim 28 (Figs 2-5). In the second embodiment, the stem 92 is provided with an enlarged section and snapped into a hole of the shim 28 (Figs 6-7). Original independent claim 11 was directed to both embodiments. Original independent method claim 17 was directed to the riveting embodiment, and original independent method claim 20 was directed to the snapping embodiment.

In the present Amendment, Applicants have limited claim 11 to the snap-in embodiment by incorporating the limitations recited in claims 12, 14 and 16. That is, claim 11 has been amended to recite an embodiment of the invention in which the stem has an enlarged section prior to coupling with the second coupler member, and in which the height of the stem is smaller than the depth of the recess, i.e., it is always positioned subsurface. Similar amendments have been made to claim 20. Claims 12, 14 and 16 have been cancelled.

New claims 23-27 have been added in order to more particular claim the backing plate and a friction assembly comprising the backing plate having a snap-fit with a noise-dampening shim. Claims 23-27 are supported by the application as originally filed.

Applicants state that the claim amendments were not done in acquiescence of any objection or rejection relating to patentability. Rather, the claims were amended to advance prosecution of the application. Applicants reserve the right to file one or more continuation applications to defend the patentability of patentable subject matter that may have been removed by the claim amendments.

Upon entry of this Amendment, claims 11, 15, and 20-25 are pending. No new matter has been added by any amendment herein.

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II. Rejection under 35 U.S.C. § 102(e)- Bosco

Claims 11, 12, 14, 15, and 17-19 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by US 2004/0134725 to Bosco et al. ("Bosco"). Claims 12, 14, and 17-19 have been canceled and therefore the rejection of these claims is moot and should be withdrawn. Applicant submits that Bosco does not anticipate the invention of amended claims 11 and 15.

Bosco is directed to a brake assembly that does not result in interference by the pin (paragraphs 0017, 0018, and 0038), and does not involve the use of a subsurface pin. Bosco clearly shows that pins 30, 31 are protruding over the surface 17 of the backing plate 16, and does not show or suggest any embodiment with pins being subsurface of the backing plate 16 before coupling with a shim.

As can be seen in Figs. 1 and 2, protruding pins 30, 31 of Bosco would interfere with other backing plates during handling the backing plates before coupling, and require a special complicated mechanism to support the backing plate 16 while the backing plate 16 is subject to surface treatment or being molded with the friction material 18. Bosco does not disclose any backing plate having a stem whose height is smaller than the depth of the recess surrounding the stem in the backing plate.

Amended claim 11 is directed to an embodiment of the present invention in which the height of the stem is smaller than the depth of the recess of the backing plate such that the distal end of the stem starts and remains within the recess. This recess is formed on the back surface of the backing plate, rather than on the shim. The distal end of the stem remains within the recess of the backing plate, regardless of whether the shim is coupled or not.

The backing plate recited in claim 11 also has a stem having an enlarged section. The enlarged section has a larger-cross section positioned near the distal end of the stem, prior to coupling with the second coupler member. The enlarged section allows the second coupler to be press fit into position, wherein the rim of the second coupler member engages the pin to prevent disengagement of the shim from the backing plate after assembly. Thus, the present invention enables the backing plate to be processed with a friction material in a conventional manner, and the shim to be attached with a press fit. Bosco does not disclose a pin as presently claimed having such an enlarged section prior to assembly.

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According to the present claims, the stem always remains within the recess of the backing plate, and the backing plate can be handled as easily as a flat plate. A standard machine can be used to readily support the backing plate while it is subject to surface treatment or while a friction material is molded on the backing plate. Moreover, because the pins are located subsurface, the backing plate according to the present invention may be used without a shim in certain applications without the need for further machining or design changes. In contrast, Bosco's backing plate cannot be used in those applications as the protruding pins 30, 31 would interfere with a piston or caliper during the braking.

Accordingly, claim 11 and its dependent claim 15 are clearly distinguishable over Bosco, and are not disclosed by Bosco. Withdrawal of the rejection of claims 11 and 15 under 35 U.S.C. §102(e) is requested.

III. Rejection under 35 U.S.C. § 103(a)

Claims 16 and 20-22 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bosco. Claim 16 has been canceled, and therefore the rejection of this claim is moot and should be withdrawn.

Claims 20-22 recite a method according to the snap-in embodiment. The Examiner has agreed that Bosco does not disclose connecting the shim and backing plate by a snapping-in action. However, the Examiner has alleged that it would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the shim to the backing plate using any well known method on the grounds that such merely a design choice.

Applicants disagree with the Examiner's statement that the claimed invention would have been an obvious matter of design choice. There is no disclosure or suggestion by Bosco that use of a snap-fit connection would facilitate manufacturing, processing, or assembly. Nor is there any suggestion that use of a subsurface pin would permit the device to be used without a shim (if so desired for a particular application) without further machining. It is only through impermissible hindsight that the Examiner can allege that the claimed invention is obvious in view of Bosco. Use of hindsight is improper. Graham v. John Deere Co., 383 US 1, 17 (1966).

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The use of a snapping-in action was not a known method of coupling a shim to a backing plate at the time of the invention. Bosco shows deforming of the pins 30, 31 after positioning the pins in apertures 50, 51 of shim 40 (Figures 2 and 3). This well known method required a holding mechanism to hold shim 40 relative to the backing plate until the pins are deformed to secure the backing plate.

In contrast, the snapping-in press-fit design allows simple coupling of the shim with the backing plate, and does not require such a holding mechanism. Coupling the shim with the backing plate by a snapping-in action is not a mere design choice, and there is no prior art disclosing or suggesting such snap-in coupling of a shim and a backing plate.

Accordingly, claims 20-22 are not an obvious variation of Bosco, and in the absence of impermissible hindsight, the claimed invention cannot be derived from Bosco. Therefore, the rejection of claims 20-22 under 35 U.S.C. §103(a) is improper and should be withdrawn.

IV. EP 999,376 to Kirschdorf and US 2004/0035651 to Renault

Applicants are concurrently submitting an Information Disclosure Statement to disclose EP 999,376 to Kirschdorf ("Kirschdorf") and US 2004/0035651 to Renault ("Renault"). These documents were cited in a European Search Report which issued in connection with the European member of the same patent family as the instant application.

(a) Kirschdorf

In Figures 3-5, Kirschdorf shows a backing plate 1 having ring-shaped recess 12, and a shim 2 having a protruding cylindrical collar 22. Kirschdorf couples the shim with the backing plate by compressing the shim 2 onto the recess so that the collar 22 of the shim spreads into the recess 12 of the backing plate. This action requires cutting a lower and wider section 12' below the rim of the recess 12 of the backing plate. In Figures 1 and 2, Kirschdorf shows how to make such an undercut, i.e., by deforming the rim to provide a section overhanging the spread section 12'. It is difficult in practice to make a desired shape by cutting the rim as seen in Figure 2.

The ring-shaped recess 12 forms a raised element in the middle of the recess and having a slanted side wall. This raised element does not correspond to the stem of the present invention.

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The stem of the protrusion in the present invention actively contributes to the coupling of the shim with the backing plate, whereas in Kirschdorf, the rim of the recess 12 is involved in the coupling. Kirschdorf's raised element does not function to couple the shim to the backing plate. It is simply used to deform the collar 22 of the shim along the slanted side wall.

In addition, Kirschdorf does not disclose an element having an enlarged section near its top surface and which is located below the surface of the plate. Kirschdorf also does not disclose attachment of the components by snapping a stem having an enlarged section near the distal end into a hole of a shim, as provided by the claimed invention.

(b) Renault

Renault discloses a disc brake, pad, and anti-noise shim for a motor vehicle. In Figure 2, Renault shows pins 23 provided on metal support 18 and lances 24 provided in shim 21. In paragraph [0039], Renault states that "the anti-noise shim 21 is integral with the metal support 18: this integration can be achieved by bonding". This statement suggests that the shim 21 and the metal support 18 are glued together. Renault goes on to state that "the metal support 18 has on its face facing the piston 14 pins 23, here two pins 23, emerging from the base of tapering cavities. These tapering cavities receive lances 24 of corresponding shape, arranged in the anti-noise shim 21 and pieced with holes adapted to receive the pins 23; thus, the anti-noise shim 21 is positioned with respect to the metal support 18 and fastened" (paragraph [0040]). This statement suggests that pins 23 and lances 24 are used for positioning the shim relative to the metal support. It is not clear how the shim and support are "fastened" in this sentence. However, in view of the previous sentence, it appears that the shim and the metal support are positioned using the pins 23 and lances 24, and fastened "by bonding", i.e., gluing.

Figure 2 of Renault appears to show pins 23 have a height which is about the same as the depth of the cavities around the pins. However, Renault does not disclose or suggest that these pins are deformed either before or after placement. In addition, Renault does not disclose or suggest that any pins have an enlarged section, or are used for snap-in coupling.

Accordingly, the invention is patentably distinguishable over Kirschdorf and Renault.

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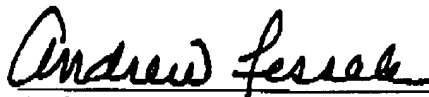
V. Conclusion

Upon entry of this Amendment, claims 11, 15, and 20-25 are pending. Applicants respectfully submit that claims 11, 15, and 20-25 are in condition for allowance, which action is earnestly solicited.

Authorization is hereby given to charge any fee which may be due in connection with this communication to Deposit Account No. 23-1703.

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Respectfully submitted,



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